

PROJECT NUMBER: 2307
PROJECT TITLE: Flavor Investigation/Processed Tobacco
PROJECT LEADER: R. W. Hale/J. Swain
PERIOD COVERED: April, 1989

I. FLAVOR INVESTIGATION:

A. Objective: To provide analytical support for activities related to development and application of flavoring materials.

B. Results:

1. **Low Tar/High Flavor:** Method development was started on total smoke isolation, fractionation and GC/MS Analysis. These methods will be used to establish a reliable qualitative and quantitative comparison of smoke composition for cigarettes with the same filler but with different degrees of ventilation.
2. **Glycerin/Triacetin:** Extractions of the impurities from both glycerin and triacetin have been completed. The quantities of the impurities are now of sufficient amounts so that identification can be completed by GC/MS. Models utilizing natural/synthetic blends of triacetin on the filter plugs are being subjectively evaluated this week.
3. **Operations Support:** Analyses of anethole on 36 filler samples have been completed for the total blend silo and A/C cylinder capacity test for the Manufacturing Center. Analyses of anethole on 50 filler samples have been completed for the A/C application optimization study in Semi-works. Seven samples of Marlboro 85 cigarettes, March 7, 1989 factory pick-up, were analyzed for anethole.
4. **Miscellaneous Internal Analytical Support:** Ethanol, PG and water were determined in 19 aftercut samples for different projects. GC profiles and GC/MS identifications have been completed for 10 natural oils. Headspace volatiles were run on several cigarette samples.

II. PROCESSED TOBACCO

A. Objective: To develop basic and applied knowledge for the purpose of improvement or selective modification of subjective properties of processed tobaccos.

B. Results:

1. **ART Stem Utilization:** Marlboro blends are being evaluated with pilot RL's incorporating slightly less than 2% ART stem in combination with RCB containing 11% ART stem. Leaf Department blend projections based on these levels of usage in sheet materials would account for less than 50% utilization of

ART stem. To allow higher usage in RL's, post-treatments are being tested. Initial results of Hauni tunnel steam treatment of wet-ART stem has shown promise compared to untreated dry-ART stem at a higher level (7.2%) in RL's. Intermediate levels of substitution being made in RL pilot plant this week.

Internal panel tests of ART stem increased to 22% replacing burley stem in RCB have shown subjective differences in Marlboro blends. Intermediate level of 16.5% usage to be evaluated by blending previous test RCB's (50/50) to determine subjective threshold prior to further production RCB trials.

2. Dry Flavor Replacement: Discussions with vendors of roasted JONEX will proceed with increased emphasis on reducing batch-to-batch variability. Larger scale samples to be requested to confirm analytical specifications and subjective parity.
3. ASTA Sheet: Remake of Spanish Marlboro cigarettes with 7% ASTA replacing RCB showed more typical deliveries. Subjective evaluations in progress.